

ABSTRACT OF THE DISCLOSURE

The objective lens assembly of an optical inspection device is surrounded coaxially of its optical axis by an illuminator housing having therein a central opening surrounded by a circular array of reflective mirror surfaces or facets that are inclined at like angles to the optical axis, and which register with the light emitting of a like circular array of LEDs mounted in the housing in radially spaced, coaxial relation to the mirror facets. Mounted coaxially beneath the illuminator housing for vertical adjustment relative thereto is a generally disc-shaped Fresnel lens. The lens is movable by drive means optionally between an uppermost position adjacent the underside of the housing and a lowermost position adjacent the work that is to be inspected. When the lens in its uppermost position light beams from the LEDs are reflected by the mirror facets downwardly through an opening in the bottom of the illuminator housing in the form of an expanding cone of illumination and annularly onto the upper surface of the Fresnel lens. The Fresnel lens then refracts the cone of light and directs it toward the work that is to be inspected at an angle of incidence of 15° with respect to the optical axis. When the lens is shifted downwardly toward the workpiece, the angle of incidence of the refracted illumination increases to a maximum of 75° .

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